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green. Head rounded, green with black ocellus and brown mandibles; width .8 mm. The horns are detachable as at maturity. Length, 4.5 to 7 mm.

Stage V.—Shape as in the mature larva, all the horns equal except joints 3 and 4 which are beginning to be a little shorter, that of 3 slightly recurved. Dorsal groove distinct, narrow; basal piece of horns distinct, cordate at base. Horns regularly tapering, rounded at tip, densely clothed with long, fine, white fringe-hairs. There are also some smooth, short, dark-tipped hairs and short, densely feathered, stellate ones especially toward the bases of the horns. Setæ i and ii long, smooth, black. Skin as at maturity. Color soft, clear green, more whitish along the dorsal groove. Nearly all the specimens (35) had lost the red spots at this stage, only one or two retaining them. Length, 7 to 10.5 mm.

Stage VI.—Mature larva. Length, 10.5 to 16.7 mm. The short smooth hairs on the horns represent the long smooth ones of the earlier stages; the short, very feathery hairs are those of the long feathery ones which lie on the dorsal aspect of the horns, made short. The larva here recorded probably omitted one of the normal stages. Probably the penultimate as in *Packardia geminata* (JOURN. N. Y. ENT. Soc. VI, 3).

It was kept very warm and was protected from the chill night air that it would have had on its native river. Consequently it grew very rapidly, probably more so than in nature.

Another larva reached 13.5 mm. before last molt which was doubtless this missing stage. It was like the final stage, but the coloration entirely green.

Food-plants. Add Marlberry (*Ardisia pickeringia*), cocoa plum (*Chrysobalanus icacoa*) and another plant not determined. I am indebted to Mr. F. Kinzel for the names and to Mrs. Slosson for sending leaves to feed the larvæ.

ON THE DIPTEROUS FAMILY SCATOPHAGIDÆ.

By D. W. COQUILLETT, Washington, D. C.

This family is known in Europe as Scatomyzidæ, but since the genus *Scatomyza* is an admitted synonym of *Scatophaga*, it would appear desirable to change the name of the family to Scatophagidæ. In the

Osten Sacken catalogue it bears the name of Cordyluridæ, but since the genus *Scatophaga* is the oldest one in this family, it is desirable to name the family after it.

The European genera and species of this family have quite recently been monographed by Mr. Theodore Becker,* and a translation of his tables of subfamilies and genera, in an abbreviated form, is given by Dr. Williston in his recent manual. Owing to the faulty definitions of the subfamilies, whereby certain genera which possess a given character are placed in a subfamily in which this character is expressly stated to be absent, and the further difficulty of separating subfamilies by such Walkerian phrases as "face short," "face long," it will be quite impossible for the student to refer his species to its proper genus by the use of these tables, and I have therefore constructed an entirely new one which contains all of the genera belonging to this family known to me to occur in this country.

TABLE OF GENERA.

1. Front tibiæ destitute of an erect black spine on the inner side of each near the apex 2
 Front tibiæ each bearing such a spine, third antennal joint rounded at the apex, palpi destitute of an unusually long bristle at apex of each, one sternopleural macrochætæ..... **Acanthocnema** *Becker*.
2. Third antennal joint produced in the form of a tooth at the anterior apical angle. . 3
 Third joint rounded at the apex 5
3. With three sternopleural macrochætæ, palpi destitute of an unusually long bristle at apex of each..... **Orthochætæ** *Becker*.
 With two sternopleurals, palpi near apex of each bearing a bristle which is nearly one-half as long as the palpi **Chætosa**, gen. nov.
 With only one sternopleural, palpi destitute of a single long terminal bristle. . . . 4
4. Palpi spatulate, about twice as long as wide..... **Spaziphora** *Rond*.
 Palpi more than four times as long as wide... .. **Opsiomylia**, gen. nov.
5. Apex of palpi each bearing a single bristle which is nearly as long as the palpi, one sternopleural 6
 Apex of palpi destitute of such a bristle..... 7
6. Head at least as high as long, face nearly perpendicular **Cordylura** *Fall*.
 Head flattened, noticeably longer than high, face very oblique, greatly retreating below **Acicephala**, gen. nov.
7. With only one sternopleural..... 8
 With two sternopleurals, frontal bristles strong, two or more pairs on anterior third of the front..... **Hexamitocera** *Becker*.
8. Frontal bristles strong, two or more pairs on anterior third of the front.
Scatophaga *Meig*.
 Frontal bristles very short, none on lowest third of the front. **Hydromyza** *Fallen*.

* Berl. Ent. Zeitsch., May, 1894, pages 77 to 196.

DESCRIPTIONS OF NEW SPECIES, AND NOTES.

Scatophaga vulpina, sp. nov.

Black, the front except each side and an ocellar spot, face cheeks, first two antennal joints, arista, palpi, halteres and legs, yellowish, the bases of the front femora and a streak or more or less of the bases of the others, sometimes black; hairs of occiput, body and legs long and abundant, principally reddish-yellow, arista bare, humeral and dorso-central bristles except the posterior pair, very slender, scarcely distinguishable from the hairs, pteropleura bare, middle and hind femora destitute of stout macrochaetæ, hind tibiæ each bearing only two, situated near the middle of the front side; wings strongly tinged with yellow, the small and posterior crossveins bordered with brown; body subopaque, gray pruinose, the thorax and pleura mottled with brown. Length, 8 to 11 mm.

Point Barrow, Alaska. Five males and five females collected June 22, 1882, by Mr. John Murdock. Type No. 4096, U. S. National Museum.

Scatophaga furcata Say.

This is one of the few species introduced from Europe and described in this country before it was described in Europe. The synonymy is: *squalida* Meig., *apicalis* Curtis, *nigricans* Macq., *fuscinervis* Zett., *pubesceus* Walk., and *Cleigastra suistere* Townsend; the latter based upon a co-type specimen.

Opsiomyia, gen. nov.

The characters of this genus may be gleaned from the following description of the type species:

Opsiomyia palpalis, sp. nov.

Head slightly broader than high, as long as high, slightly longer at base of antennæ than at the vibrissæ, seven pairs of orbital bristles which extend from the lowest ocellus to the anterior end of the front, clypeus connate with the face and extending more than the length of the second antennal joint below the vibrissæ, the latter almost twice as long as any of the adjacent bristles, lateral oral margin bearing black bristles on nearly its anterior half; third joint of antennæ twice as long as broad, slightly more than twice as long as the second, the anterior apical angle produced in the form of a tooth, arista bare, thickened on the basal third, the penultimate joint slightly longer than broad; proboscis robust, palpi greatly flattened, of nearly an equal width but tapering at the base, five times as long as broad, projecting four-fifths of its length beyond the oral margin, each bearing a single long, black bristle near the middle of the outer side, eyes oblique, slightly higher than long, bare. Bristly hairs of body short and sparse, five dorso-central macrochaetæ, one sternopleural and four stout scutellar, none on the abdomen, all femora and tibiæ bearing several, hind tibiæ each with two pairs on the outer side besides those near the tip. Venation practically as in *Cordylura*, all veins bare. Black, the extreme

base of palpi yellow, remainder white, halteres, femora, tibiæ and tarsi yellowish, wings hyaline; face silvery white, body brownish gray pruinose. Length, 5 mm.

White Mts., N. H. Two males collected by the late H. K. Morrison. Type No. 4097.

Chætosa, gen. nov.

The type species is *Cordylura punctipes* Meig., of which the National Museum possesses two specimens from Minnesota, one from Colorado and two from Holland. This species could never be identified by the use of Becker's monograph, since he places it in the genus *Trichopalpus*, to which, both in the table of genera and in the definition of the genus, he attributes a single sternopleural macrochætæ. The palpi are sub-lanceolate, slightly flattened, and at the apex of each is a black bristle which is much longer than any of the adjacent ones.

Acicephala, gen. nov.

Closely related to *Cordylura* but readily distinguishable by the elongated, flattened head and very oblique face. Type, the following species:

Acicephala polita, sp. nov.

Black, the face, cheeks, palpi, halteres, coxæ, femora, tibiæ and tarsi, yellowish; front, except the ocellar triangle, inner side and apex of second antennal joint, face, cheeks and pleura white pruinose, the occiput, mesonotum, scutellum and abdomen, polished; second joint of antennæ prolonged over the inner side of the first nearly to the arista, the third joint two and one-half times as long as broad, only slightly longer than the second, arista rather long plumose, thickened on the basal fifth, the penultimate joint broader than long; eyes bare, nearly perpendicular, only slightly higher than long; vibrissæ more than twice as long as the adjoining bristles, lateral oral margin bearing three or four black bristles on its anterior half; palpi clavate, slightly flattened, bearing several long yellowish bristles near the middle, a few short black ones at the tip besides one which is nearly as long as the palpi; proboscis robust, only slightly over twice as long as thick. Mesonotum almost destitute of bristly hairs, five stout dorso-central macrochætæ, one prothoracic, one sternopleural, and two on the scutellum; abdomen less polished than the mesonotum, destitute of stout macrochætæ, its hairs black, those on the venter except at the apex, whitish. Wings hyaline, tinged with brown along the veins, third and fourth veins toward their apices parallel, the fourth ending far beyond the apex of the second, small crossvein beyond the middle of the discal cell, and far beyond the tip of the first vein, all veins bare. All femora and tibiæ bearing macrochætæ, hind tibiæ each bearing three pairs on the outer side beside those at the tip. Length, 7 to 8 mm.

Colorado. One male and three females. Type No. 4098.

Acicephala pilosella, sp. nov.

Same as the above description of *polita* with these exceptions: Face, cheeks, palpi, coxæ and femora black; pruinosity of front, face, cheeks, and pleura, brownish

gray and not dense, none on the second antennal joint, mesonotum sparsely covered with short yellow hairs, only one pair of dorso-centrals, the prothoracic bristle yellow, hairs of the first three segments of the abdomen in the male, of the first six in the female, yellow, apex of sixth segment in the female bearing six stout macrochaetae. Wings not tinged with brown along the veins. Hind tibiae each bearing only two pairs of macrochaetae on the outer side. Length, 6 to 7 mm.

Colorado, and Reno, Nevada (H. F. Wickham). One male and two females. Type No. 5002.

***Cordylura nebulosa*, sp. nov.**

Black, the front except the sides and the ocellar triangle, dark brownish yellow, sides of front, face, cheeks, lower part of occiput and the palpi, white, first two antennal joints, proboscis, halteres, coxae, femora, tibiae and tarsi yellow; third antennal joint one and one-third times as long as wide, arista short pubescent, vibrissae short, yellow, a yellow bristle of nearly the same length below each. Mesonotum and scutellum opaque gray pruinose, five dorso-central macrochaetae, scutellum bearing four stout ones; pleura on the lower part gray pruinose, the upper part and the abdomen polished, the latter destitute of stout macrochaetae, its hairs yellow. All femora and tibiae bearing stout macrochaetae, hind tibiae each with three on the outer side besides those at the tip. Wings hyaline, the costal cell beyond the humeral crossvein, a border to the first vein beyond base of the second, and a large spot extending from apex of first vein to slightly beyond the apex of the fourth, brown, sometimes a hyaline vitta in the marginal cell, a triangular hyaline spot near apex of the submarginal and first posterior cells; small crossvein near last third of the discal cell. Length, 5 mm.

Algonquin, Ill. Two female specimens collected June 2 and 6, 1895, by Dr. W. A. Nason. Type No. 4099.

***Cordylura slossonae*, sp. nov.**

Black, the lower half of the front, antennae, face, cheeks, lower part of occiput, palpi, proboscis, under side of the prothorax, halteres, apical lamellae of the genitalia, coxae, except a spot on the outer sides of the middle and hind ones, femora except apices of the middle and hind ones, tibiae and tarsi, yellow. Third antennal joint one or two-thirds times as long as wide, arista long plumose on the basal half, thickened on the basal sixth, lateral oral margin ciliate with yellow bristly hairs. Mesonotum, scutellum and abdomen polished, sparsely covered with yellow hairs, one pair of dorso-central and scutellar macrochaetae, abdomen destitute of stout macrochaetae except at apex of the sixth segment; pleura gray pruinose, one sternopleural macrochaetae, those of the prothorax and mesopleura slender and yellow. Front and hind femora destitute of stout macrochaetae, those of the front tibiae slender and yellow, under sides of femora and inner sides of tibiae thickly covered with long yellow hairs. Wings hyaline, small crossvein near last third of the discal cell. Length, 7 mm.

Mt. Washington (Mrs. A. T. Slosson) and White Mountains (H. K. Morrison), N. H., and Beverly, Mass. (Edw. Burgess). Four male specimens. Type No. 5000.

Hexamitocera vittata, sp. nov.

Head yellow, an oblong ocellar spot and a wide stripe extending from the upper part of each eye to the neck, dark brown; antennæ brown, the first two joints and base of the third yellow, third joint two and one-half times as long as broad, arista pubescent, palpi and proboscis yellow. Thorax yellow, the mesonotum, scutellum, metanotum and a vitta beneath each wing, dark brown, polished, the mesonotum marked with four yellow vittæ; two pairs of dorso-centrals, one pair of scutellar, two prothoracic and two stenopleural macrochætæ. Abdomen polished, dark brown, the hypopygium and the posterior margin of each segment, except the first, yellow, the hairs black, a few macrochætæ along the sides. Legs yellow, front and middle femora ciliate on the under sides with black bristles. Wings grayish hyaline, small crossvein slightly beyond middle of discal cell. Length, 6 mm.

Colorado. A male specimen. Type No. 5001.

**COCCIDÆ COLLECTED IN MEXICO BY MESSRS.
TOWNSEND AND KOEBELE IN 1897.**

BY C. H. TYLER TOWNSEND AND T. D. A. COCKERELL.

The following are species jointly studied by us (with certain exceptions duly noted) in working over the two lots of coccid material collected in Mexico by Messrs. Townsend and Koebele during 1897, which were sent to us for determination by the United States Department of Agriculture. An author's initials, bracketed at the end of a species, mean that the entire text under that species is to be accredited to that author alone. The work of mounting the specimens, drawing up the descriptions, and finally of preparing and writing the entire manuscript, was done by Mr. Townsend. Some notes on the forms of *Icerya purchasi*, based on material not represented in the above two lots, and also the description of a Brazilian species of *Capulinia*, are included in the paper, having developed in connection with the study of the other material.

***Icerya purchasi* Mask.**

Typical form (= *crawi* Ckll.).—On citrus trees in Magdalena, Sonora, Sept., 1894 (Townsend). Thriving colonies of the typical *purchasi* were found here, and must have been introduced from California. This, however, is so far the only authentic recorded locality for typical *purchasi* in Mexico. (See remarks under var. *maskelli* which follows.)
[C. H. T. T.]